Conclusions:

1. For the first time, a very thorough and unbiased analysis of the positive and negative aspects of the design of lighting fixtures for industrial facilities was conducted.

2. The essence and ideology of design are presented, the disadvantages and advantages of different approaches are shown.

3. The market of industrial lights is quite stable, the old modifications of discharge lights do not disappear from the sites of manufacturers, as well as examples of their use - and still are many. However, LED technology continues to evolve and, given the pace of their development, it is possible to predict a gradual reduction in the range of lights with discharge lamps.

АНАЛІЗ ДВОХ РІЗНИХ ПІДХОДІВ ЩОДО ПРОЕКТУВАННЯ ПРОМИСЛОВОГО ОСВІТЛЮВАЛЬНОГО ОБЛАДНАННЯ

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АНАЛИЗ ДВУХ РАЗНЫХ ПОДХОДОВ К ПРОЕКТИРОВАНИЮ ПРОМЫШЛЕННОГО ОСВЕТИТЕЛЬНОГО ОБОРУДОВАНИЯ

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METHODS OF DESIGNING INDUSTRIAL LIGHTING FIXTURES WITH DISCHARGE LAMPS

Today modern lighting devices require not only the ob-servance of the necessary light distribution, which is regu-lated in accordance with the nature and conditions of their operation, but also in accordance with the tasks of energy saving and ecology. If we analyze the overall market situa-tion of the lighting products of Ukraine and the neighboring countries of the EU, it is possible to record the turbulent dynamics of the LED lighting market. So LEDs have be-come seriously entrenched in the market for indoor and outdoor lighting: local lighting, indoor lighting, facade and architectural lighting, decorative and stage lighting, trans-portation lighting, and more. Practically, it is possible to state unlimited domination in the market of lighting prod-ucts of lighting devices on LED basis, if not but for one thing. Powerful DRI and DNaT discharge lamps cannot compete with their LED counterparts, but they do have certain unconditional advantages that keep them on the market. The first and the most famous is the low price. This advantage is, in fact, highly debatable, as the low cost of discharge lamps and luminaires for them quickly becomes a trap for developers of appropriate lighting because of the significant power consumption of the respective lighting systems and the significant degradation of the lighting characteristics of such luminaires over time. In contrast to the mentioned, their LED counterparts have their draw-backs in that sense - LEDs are more vulnerable to external climatic factors and, therefore, have deviations in their reg-ulated characteristics unlike discharge lamps that are purely structural ¬ - due to the presence of a vacuum layer between the outer flask and the burner, they are more stable with respect to variations in ambient temperature. The sec-ond advantage is the spectral range of the discharge lamps. If you need to design street or industrial lighting, for exam-ple, to develop and apply a light fixture to illuminate a highway or foundry at a metallurgical plant, a white LED light would not be the best solution for the developer. The spectral range of luminaires for such tasks should be at a maximum in the orange range. The explanation is simple - such a spectrum is the most effective stimulus for the hu-man

eyes, which is particularly relevant in the context of the reduced transparency of the atmosphere in which light of such spectral range is spread.

In addition, some of the visual work in industrial plants (such as visual melt temperature control) is associated with the use of orange light. In the open access there are reports on the increase in the number of road accidents on the streets and highways of cities caused by white-range LED lighting. We must be aware that the primary purpose of lighting is the most effective solution to the problem of performing visual work of a certain level of complexity. The fact that the highway will be illuminated by energy-efficient light is a positive thing, but the truth is that the road must be lit in such a way that it performs its function as much as possible - for example, providing a certain level of passenger flow while respecting the conditions of pas-senger traffic safety.

The third, and perhaps the most important advantage of discharge lamps is the significant luminous flux of these devices. On average, it exceeds 3-4 times the corresponding characteristics for LED devices. To adequately compensate one street light fixture with an ZhKU lamp on the street, several LED analogs must be used, which is not attractive in terms of the high cost of such lighting.

Given this, it can be noted that the current scientific trends are developments - methodological, theoretical and experimental, related to improving the efficiency of some categories of luminaires with discharge lamps. One such category is the powerful industrial spotlight luminaires.

This work is aimed at solving the urgent scientific problem of finding ways to improve the design efficiency of industrial luminaires.

Based on a comparative analysis of modern luminaires with different light sources, the urgent task of creating new modifications of industrial luminaires with discharge lamps was determined. The calculation method of calculation of the profile geometry of the mirror reflectors of industrial luminaires is presented, which provides the necessary lu-minous distribution of the luminaire at a fixed power of the light source. Testing of the technique on the light sources DNAT-250 was performed. It is shown that the use of the calculation algorithms proposed by the authors made it possible to design a ZhSP-250 lamp with regulated G-2 light distribution for specific objects of operation. It is pos-sible to note the efficiency of the method both in terms of the accuracy of the calculations and the simple geometry of the reflector, obtained in the calculation method, which will allow to use simplified technological schemes for the serial production of such lamps.

МЕТОДИКА ПРОЕКТИРОВАНИЯ ПРОМЫШЛЕННЫХ СВЕТИЛЬНИКОВ С РАЗРЯДНЫМИ ЛАМПАМИ

Е. Э. Лобанов, Г.А. Петченко

МЕТОДИКА ПРОЕКТУВАННЯ ПРОМИСЛОВИХ СВІТЛОВИХ ПРИЛАДІВ З РОЗРЯДНИМИ ЛАМПАМИ

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APPLICATION OF OPTICAL ABSORPTION METHOD FOR DEFECTOSCOPY OF OPTICAL MATERIALS

Today ionic crystals are widely used in devices for various purposes. In X-ray spectral optics they are widely used as crystal monochromators; ionic crystals are used in optical devices where lenses and transparent optical media (light filters) are made of optically pure materials - ionic crys-